

## CLAIMS

1. A method of scheduling the handling of communication channels by a processor assigned to handle a plurality of channels, comprising:
  - 5 determining for each channel, handled by the processor, a target time by which time it should receive processing;  
selecting one or more of the assigned channels whose data is to be handled next, based on the target times of the channels; and  
when more than one channel is selected, choosing for handling before other channels,  
10 at least one of the selected channels based on a consideration directed at minimizing the average processing time of the channels.
2. A method according to claim 1, wherein determining a target time for each channel comprises determining a time by which the channel needs to receive a handling session in  
15 order to avoid starvation.
3. A method according to claim 1, wherein determining a target time for each channel comprises determining an average duration of the handling of the channel.
- 20 4. A method according to claim 3, wherein determining a target time for each channel comprises determining the target time as the time at which a driver collects processed data of the channel minus the average handling duration.
5. A method according to claim 1, wherein selecting based on the target times comprises  
25 selecting the channels having a shortest duration until their target times.
6. A method according to claim 1, wherein selecting based on the target times comprises determining a closest target time among the target times of the channels and determining a number of channels which can be handled in the time remaining until the shortest target time.

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7. A method according to claim 6, wherein selecting based on the target times comprises selecting channels having the shortest time until their target times up to the determined number of channels.
- 5 8. A method according to claim 1, wherein choosing at least one of the selected channels comprises choosing at least one channel that requires processing by a software module already in a memory of the processor.
9. A method according to claim 1, wherein choosing at least one of the selected channels  
10 comprises choosing at least one channel of a same type as a channel currently handled by the processor.
10. A method according to claim 1, wherein choosing at least one of the selected channels  
15 comprises choosing from all the selected channels based on the consideration directed at minimizing the average processing time of the channels.
11. A method according to claim 1, wherein choosing at least one of the selected channels comprises choosing from the selected channels that have an equal quality of service rating.
- 20 12. A method according to claim 1, wherein choosing at least one of the selected channels comprises choosing for handling all the selected channels before handling other channels.
13. A method according to claim 1, wherein selecting based on the target times comprises selecting a plurality of channels having different target times.  
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14. A method according to claim 1, wherein choosing at least one of the selected channels comprises choosing based on the protocol governing the handling of the data of the channels.
15. A method according to claim 1, wherein choosing at least one of the selected channels  
30 comprises choosing based on the transmission rates of the channels.

16. A method according to claim 1, wherein choosing at least one of the selected channels comprises choosing based on the types of the channels.
17. A method according to claim 1, wherein choosing at least one of the selected channels  
5 comprises choosing based on a consideration that minimizes time spent on memory transfers.
18. A method of scheduling the handling of communication channels by a processor assigned to handle a plurality of channels, comprising:  
determining for each channel, handled by the processor, a target time by which time it  
10 should receive processing;  
selecting, based on the target times of the channels, a plurality of assigned channels, having two or more different target times, from which a next handled channel is to be selected;  
choosing for processing one of the selected channels at least partially based on considerations not related to the target times of the channels; and  
15 scheduling the processor to handle the chosen channel.
19. A method according to claim 18, wherein choosing one of the selected channels comprises choosing a channel having a farther target time than at least one channel that was not chosen.  
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20. A method according to claim 18, wherein choosing one of the selected channels comprises choosing from the selected channels a channel having a closer target time than at least one channel that was not chosen.
21. A method according to claim 18, wherein choosing one of the selected channels  
25 comprises selecting based on processing efficiency considerations.
22. A method according to claim 18, wherein determining a target time for each channel comprises determining a time by which the channel needs to receive a handling session in  
30 order to avoid starvation.

23. A method according to claim 18, wherein selecting based on the target times comprises determining a number  $x$  of channels which can be handled in the time remaining until a closest target time of the assigned channels, and selecting the  $x$  channels having the shortest time until their target times.
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24. A method according to claim 18, wherein choosing one of the selected channels comprises choosing a channel that requires processing by a software module already in a memory of the processor.
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25. A method according to claim 18, wherein choosing one of the selected channels comprises choosing a channel of a same type as a channel currently handled by the processor.
26. A method according to claim 18, wherein choosing one of the selected channels comprises choosing a plurality of channels based on considerations not related to timing issues
- 15 and choosing therefrom a single channel based on the target times.
27. A scheduler of a processor assigned to handle a plurality of channels, comprising:  
a memory adapted to store target time information for each of the channels, indicating a target time until which the channel should receive a processing session; and
- 20 a processor adapted to select one or more of the assigned channels whose data is to be handled next, based on the target times of the channels, to choose at least one of the selected channels based on a consideration directed at minimizing the average processing time of the channels, when the selecting based on the target times results in a plurality of channels and to schedule the processor to handle one of the at least one chosen channels.
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28. A scheduler according to claim 27, wherein the processor may select based on the target times a plurality of channels having different target times.
29. A scheduler according to claim 27, wherein the memory is also adapted to store
- 30 software modules run by the processor and wherein the memory has a size which can store fewer than all the software modules required to handle the plurality of channels.

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30. A scheduler according to claim 29, wherein minimizing the average processing time comprises minimizing the time spent on data transfers to the memory, of software modules.